

macy, and the pauperism with which such persons already burden the ratepayer—is kept in view, it is doubtful if the expense of their maintenance in decent surroundings can much exceed the wastage resulting from their present condition of so-called freedom.

NOTES.

At the meeting of the Paris Academy of Sciences on Monday last a letter was read from M. Jean Becquerel stating that his father, the late M. Henri Becquerel, had left the sum of 100,000 francs to the academy in the following terms:—"I bequeath to the Academy of Sciences the sum of 100,000 francs (4000*l.*) in memory of my grandfather and father, who were, like myself, members of your academy. I leave to it the responsibility of determining the best use which it can make of the interest on this capital, whether by creating an endowment or prize, or by distributing this income in a manner calculated to encourage the progress of science."

COLONEL SIR DAVID BRUCE, C.B., F.R.S., accompanied by Captains H. R. Bateman and A. E. Hamerton, Sergeant A. Gibbons and Mr. James Wilson, is about to sail for Uganda to investigate further the pathology of sleeping sickness. On arriving at Mombasa, the commission will travel by the Uganda Railway to the terminus at Port Florence, whence the lake will be crossed to Kampala. The headquarters of the work will be selected two miles from the lake shore in a wild and depopulated region in the province of Chagwe. Here the Uganda Government has been preparing a laboratory and station for the purposes of the mission. It is expected that the work will occupy about nine months.

A REUTER telegram from Simla, dated September 14, states that Dr. Sven Hedin has arrived at Fagu, twelve miles from Simla, in excellent health. During his travels he has been quite isolated in the wilds, and saw no white face until he reached Poo, in September, 1907, where the Moravian Mission offered him hospitality. Dr. Sven Hedin has, it is stated, travelled more than 4000 miles, mainly in western Tibet, and has made some noteworthy discoveries, regarding which he is very reticent for the present. He made extensive geological maps during his journey, the cost of which he estimates at more than 500*l.* Dr. Hedin intends halting at Simla for ten days, and will then proceed direct to Sweden, and thence to London, where he has been invited to lecture by the Royal Geographical Society.

SINCE the time of going to press with our last number several successful flights have been made in America by Mr. Orville Wright in his aeroplane, the records of M. Delagrangé and other competitors being easily beaten. On the morning of September 9 he stayed in the air 57m. 31s., and later in the day he flew for 1h. 2m. 15s., while on September 10 and 11 respectively he made new "world's records" by flying for 1h. 5m. 52s. and for 1h. 10m. 24s. On September 12 he was accompanied by Major George Squier, the acting chief signal officer, as a passenger, and remained in the air for 9m. 6s., flying at a speed of thirty-eight miles per hour. Major Gross, in the German military airship, made a circular tour on September 11 from Tegel, by way of Rathenow and Stendal, to Magdeburg, and thence back to Berlin, the trip lasting 13h. 2m. The previous longest flight—that of the *Zeppelin IV.*—lasted, it will be remembered, 11h. 50m.

THE death is announced, at the age of sixty-eight years, of Mr. John T. Taylor, I.S.O., for many years assistant-

secretary to the principal librarian of the British Museum. Mr. Taylor superintended the arrangements for the removal of the natural history collections to South Kensington, and was on special service at the Natural History Museum from 1880-4.

By the death on September 2 of Dr. Theodor Peters, the Society of German Engineers has lost its director. During the greater part of his connection with the society, extending over a period of twenty-five years, Dr. Peters was identified with all the changes made in the important institute under his guidance, and notably with the improvement and augmentation of the journal, the *Zeitschrift des Vereines deutscher Ingenieure*, the prosecution of systematic researches on points of mechanical and engineering interest, and the publication of such reports, not only in the current numbers of the journal, but as independent pamphlets, making the results accessible at merely nominal cost.

THE Huxley lecture of the Charing Cross Hospital Medical College, on "Recent Advances in Science and their Bearing on Medicine and Surgery," will be delivered on October 1 by Sir Patrick Manson, K.C.M.G., F.R.S.

THE medals, prizes, &c., will be distributed to the successful students of the Imperial College of Science and Technology, South Kensington, on Wednesday, October 7, by Sir William H. White, K.C.B., F.R.S. The rector, Dr. Henry T. Bovey, F.R.S., will deliver an address.

THE third International Congress for the Care of the Insane will be held on October 7-11 at Vienna. The subjects to be brought under consideration will be divided up into nine sections as follow:—(1) collective descriptions of the present state of the care of the insane in different countries; (2) the medical treatment of the insane; (3) provision for the insane from the building or architectural point of view; (4) administration; (5) insanity and insurance; (6) comparative lunacy law; (7) the care of idiots, epileptics, and the feeble-minded; (8) report of the International Committee upon the proposed establishment of an international institution for the study of the causes of insanity; and (9) the insane in the army.

THE eighth Australian Medical Congress will meet in Melbourne on October 17-24 next.

THE third International Congress of School Hygiene is to be held in Paris from March 29 to April 2, 1910. In connection with it there is to be an exhibition of everything concerned with school hygiene. Information respecting the congress can be obtained from M. Dinet, 11 bis Rue Cernuschi, Paris, but inquiries concerning the exhibition should be addressed to M. Friedel, Musée Pédagogique, 41 Rue Gay-Lussac, Paris.

AN International Industrial Exhibition is to be held at Turin from April to October, 1911, and will be divided into the following sections:—education, mechanics, electricity, photography, colonisation, national defences, measuring instruments and apparatus, public works, transportation (railways and tramways), mercantile navigation (sea, river, and lake), aerial navigation, postal services, sporting industries, modern town (dwelling, decoration, furniture), agricultural and forest industries, food industries and products, wearing apparel and leather industries, jewellery, printing, &c.

In addition to the papers announced for reading at the autumn meeting of the Iron and Steel Institute (see *NATURE*, August 27, p. 398), a paper will be read by Mr. William Hawdon on the progress in the Cleveland iron

and steel industries during the past quarter of a century, that is, since the previous visit of the institute to Middlesbrough in 1883. The paper promised by Messrs. J. E. Stead and T. Westgarth is to be held over until the next meeting.

PROF. VON LEYDEN, of Berlin, and Prof. Czerny, of Heidelberg, have been elected, respectively, honorary president and president of the International Association for the Investigation of Cancer, which was founded at Berlin in May last.

ACCORDING to the *Lancet*, Prof. Krämer, senior staff-surgeon in the German Navy, has been appointed to the charge of the scientific expedition now being fitted out for the Antarctic Ocean.

THE publication of a monthly bulletin intended for the information of local health authorities and others interested in public-health work, and to keep them in touch with what is going on at headquarters, and in Western Australia as a whole, has been begun by the Department of State Medicine and Public Health of Western Australia. The body immediately responsible for its publication is the Central Board of Health, the president of which is Dr. T. D. Lovegrove.

To mark the completion of the fiftieth year of the existence of the Geologists' Association, it is proposed to issue a volume dealing with the geology of the districts of England and Wales visited by the association since its foundation. The work, which will be edited by Messrs. H. W. Monckton and R. S. Herries, will be illustrated by maps and sections, and be ready for publication, it is hoped, before the end of the present year. Orders for copies should be sent to the secretary of the association.

ACCORDING to information received from Copenhagen, experiments in high-speed wireless telegraphy have recently been carried out by Mr. Poulsen, the Danish engineer. The experiments, which were conducted between the stations at Lyngby, near Copenhagen, and Esbjerg, on the west coast of Jutland, are declared to have resulted in the transmission of about 100 words per minute, and the inventor calculates that he will soon succeed in telegraphing 150 words a minute. It is added that the trials will, in the immediate future, be continued between Lyngby and Tynemouth, and new stations are being erected on the west coast of Ireland and in Canada, between which the high-speed system is to be employed.

THE recently issued report of the chief sanitary officer of Cuba regarding the destruction of the mosquito in the island is most encouraging. The town of Palmira, where yellow fever occurred as lately as January of this year, has been so thoroughly cleaned that in a recent inspection not a single deposit of larvæ was found in 112 houses examined. Similar good results have been secured in other provinces. In zones once noted for the prevalence of yellow fever the *Stegomyia* have been reduced below the yellow-fever limit. In Havana mosquito breeding is practically at an end, as a breeding place was found in only one house in 450 inspected, and of these considerably less than one-half were found to be *Stegomyia*.

ACCORDING to the annual report for 1907, a radical change has been inaugurated in the administration of the Marine Biological Association for the West of Scotland, and financial matters have, it is hoped, been placed on a more satisfactory footing. The committee has also expressed its intention of running the institution on strictly scientific lines, the systematic survey of the Clyde area being one of the first subjects for investigation.

THE summer of 1908 will, we learn from the September number of the *Entomologists' Monthly Magazine*, stand as a good year for clouded yellows, this being the first season since 1904 that this erratic butterfly has made its appearance in considerable numbers in the Isle of Sheppey. Most of the specimens taken were males, and all were in fine condition and colour. Pale clouded yellows have not been seen in Sheppey since 1902.

IN the *Irish Naturalist* for September Prof. G. H. Carpenter records two species of spring-tails (Collembola) as new to the British fauna. One of these was observed on a crop of tobacco, the cultivation of which has probably led to a great increase in the numbers of these minute insects. In the same issue a small gephyrean worm (*Petalostoma minutum*), typically from the Normandy coast, has been added to the Irish fauna. In No. 15 of the first volume of Economic Proceedings of the Royal Dublin Society (may we venture to call this a distinctly Hibernian title?) Prof. Carpenter gives an account of the injurious insects, &c., observed in Ireland during 1907. The fact of the caterpillar of the common rustic moth (*Apamea didyma*) feeding within the sheath-leaves of oats and barley appears to constitute a new record. A saw-fly (*Nematus maculiger*), hitherto known as feeding—in the larval state—on willow, has been detected in Ireland on larch, but beyond this there is little in the way of novelty in the year's account.

THE *Museums Journal* for August contains an editorial article on recent correspondence in connection with the British Museum (Natural History), and the deputation to the Prime Minister on the same subject. The author of the article shares Mr. Asquith's inability to realise the shortcomings of the Museum referred to by the deputation, and adds that an inquiry into the working of that institution is not likely to be granted so long as criticism is based on purely theoretical considerations. It is suggested, however, that the trustees should include more men with a practical knowledge of museum work. "Eminence in certain branches of natural science," it is added, "does not necessarily fit a man to govern a great museum any more than does eminence in law or in theology."

CHRISTOPHER MERRETT (1614-1695) forms the subject of the third part of "Early British Ornithologists," which appears in the September number of *British Birds*. Merrett, it appears, was the author of a work entitled "Pinax [= a list, or index] Rerum . . . Britannicarum," published in London in 1666, which contains a list of the birds of the country. Although extremely meagre, this list was the first attempt of its kind published.

IN *Biologisches Centralblatt* of August 15 Mr. O. Lehmann brings to a conclusion his interesting account of "scheinbar lebende Kristalle," in which he claims to have observed representatives of pseudopodia, cilia, and muscles.

It was reported by the Departmental Committee on Irish Forestry that the amount of land in Ireland available for forestry purposes is much less than is generally supposed. This is explained by Mr. A. C. Forbes in an article communicated to *Irish Gardening* (September). He advocates the establishment of nurseries by county councils to grow trees suitable for road-side planting, and for supply to farmers, who may be encouraged to help towards increasing the timber area in the country.

It is more than ten years since the disease known as root disease of sugar-cane was referred to the basidiomycetous fungus *Marasmius sacchari*; the fungus has

been identified in the West Indies, Hawaii, and Java. Although various mycologists have had the subject under investigation, there is still a good deal to be learnt with regard to its growth and the best methods of prevention. Mr. F. E. Stockdale has rendered useful service in collecting available information in a paper published in the West Indian Bulletin (vol. ix., No. 2). He expresses the opinion that there is a reasonable possibility of checking the disease by the application of Bordeaux mixture and lime, and refers to the resistant property manifested by some of the West Indian seedling canes.

THE Circular (vol. iv., No. 9) prepared by Mr. H. F. Macmillan, and issued from the Royal Botanic Gardens, Ceylon, on the acclimatisation of plants, offers several points for reflection. It furnishes evidence that the inhabitants of tropical countries, as much as of countries in temperate latitudes, have derived the greater part of their edible and economic products from exotic plants. Tea, coffee, cacao, rubber of all kinds, pine-apples, mangoes, and oranges have all been introduced into Ceylon; even the cocoa-nut palm, although of uncertain origin, is not indigenous. The author also differentiates between naturalised and acclimatised plants, and makes the broad generalisation that plants in which the reproductive period is normally prolonged are more easily acclimatised. The circular contains lists of acclimatised plants in Ceylon, naturalised weeds, and naturalised plants that have not become pests.

A REMARKABLE form of copper-rod currency, known to the natives of the north-east Transvaal as Marali, is described in the August number of *Man* by Dr. A. C. Haddon and Mr. H. D. Hemsworth, of which only two specimens are believed to have reached this country. Each example consists of a straight rod of copper about 49 cm. in length, with an average diameter of 13 mm. One end is attached to the rounded apex of a flattened, oval, conical projection, the plane of which is set at a little more than a right angle to that of the rod. Peculiar markings on one specimen seem to indicate that the bore used for the casting was made by covering a reed with earth, and that in this case, the reed having split, the coppersmith had enveloped it with bands to keep it in its proper shape. This form of currency was used chiefly in the purchase of brides by the chiefs, and each rod seems at one time to have represented the value of ten cows, the ordinary exchange price of a wife. Similar rods, which Mr. G. W. Stow in his "Native Races of South Africa" (p. 518) was inclined to regard as Madulas or phallic charms, appear to be examples of this remarkable form of currency.

In the *National Geographic Magazine* for August Mr. T. Balfour contributes an account of the natives of Humboldt Bay, in Dutch territory, on the northern coast of New Guinea. Ethnologists will be interested in his description of their sacred drums and flutes, the latter so long that when "two men each takes one of these instruments and stand opposite each other, they blow into the end of the bamboo, and the length runs out so far that each man straddles his partner's flute." Their temples are taboo to women, and Mrs. Balfour experienced much difficulty in securing entrance and a sight of the sacred objects. The architecture is peculiar, the building consisting, as it were, of three cones superimposed one upon another, that at the summit being the smallest. Their modes of disposal of the dead range from desiccation to inhumation. The pestilential climate and the unfriendliness of the people offer little encouragement to the explorer of this portion of the island.

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THE August number of the Bulletin of the American Geographical Society contains an interesting article, by Mr. J. D. Hague, on the discoveries of Sir Francis Drake, accompanied by reproductions of the Drake commemoration medal recently issued by the American Numismatic Society—the third of the series, the two earlier ones being, respectively, one in honour of Americus Vesputius, issued in 1905, and one in memory of John Paul Jones, issued in 1906. The medal now referred to represents a bust portrait of Sir Francis, which Prof. Rudolph Marschall, of Vienna, with the aid of photographic copies taken specially for this work, by the courtesy of Lady Drake, has produced from an oil painting from life by Abraham Janssens, continuously in the possession of the family, and now at Buckland Abbey, Devon. The reverse of the medal is a reproduction, as a partial facsimile, of one side (the western or Pacific hemisphere) of the celebrated silver medal or "map of the world," which is generally believed to have been made shortly, or, at most, within a few years, after Drake's return from his "world-encompassing" expedition, and concerning which the late Sir John Evans wrote in terms of high praise when directing the attention of the Royal Numismatic Society to it.

AN interesting note on the history of the knowledge of steel has been published in the *Revue de Métallurgie* (vol. v., No. 1) by Dr. Carl Benedicks, of Upsala University, the recipient this year of the Iron and Steel Institute's Carnegie gold medal for research. The difference between wrought iron, steel and cast iron, the varying proportion of carbon, was first demonstrated by Torbern Bergman in 1781. Linnæus (Pluto svecicus, 1734) describes steel as iron without sulphur, and the views adopted at that epoch were (1) that steel contained less "sulphur" than iron (Rohault and Polhem, 1740), and (2) that steel contained more "sulphur" than iron (Cramér, Gellert, Macquer, von Justi, Spielmann). The term sulphur at that period included all inflammable matter, such as asphalt and coal. The author directs attention to a forgotten French work, published anonymously in 1737, under the title of "Traité sur l'Acier d'Alsace, ou l'Art de convertir le Fer de Fonte en Acier" (Strassburg). The writer of this work was an elder brother of Gilles Augustin Bazin, a Strassburg physician. Like Réaumur, he rejects the view that steel is purer than ordinary iron, and realises that steel must be made by adding a certain quantity of extraneous matter to wrought iron, or by removing foreign matter from pig iron. He had an exceptional knowledge of steel and of its thermal treatment, and his book deserves a place beside the monumental works of Réaumur and Swedenborg (1753). A Swedish translation of Bazin's book was published at Stockholm in 1753.

A SHORT note on the study of sea-quakes in the Mediterranean, by Prof. G. Platania, of the R. Istituto Nautico, Catania, appears in the August number of the *Rivista Marittima*. Prof. Platania proposes to undertake an exhaustive study of this subject, and appeals for information and records.

THE *Rendiconti* of the Reale Istituto Lombardo, vol. xli., contain a paper by Dr. Gorini on lactic acid fermentations of milk (fasc. xiii.), and one by Prof. Bordoni-Uffreduzzi on diphtheria (fasc. xiv.-xvi.). In this it is shown that since the introduction of antitoxin treatment the number of cases of diphtheria in Milan has fallen from 1053, with 330 deaths, in 1896, to 657 cases, with 85 deaths, in 1907, a diminution of mortality per 10,000 living from 7.3 to 1.5.

THE *Atti della Fondazione Scientifica Cagnola* (xxi.) contains the reports of committees appointed to consider the merits of various prize essays submitted. The remainder (and greater part) of the volume contains an elaborate essay, by Dr. Moschini, on the supra-renal capsules, accompanied with a bibliography of fifty-five pages and illustrated with some excellent coloured plates and tracings.

OUR ASTRONOMICAL COLUMN.

COMET 1908c.—A set of elements and an ephemeris for comet 1908c have been computed by Herr H. Kobold, from observations made at Rome on September 3 and at Copenhagen on September 4 and 5, and are published in a supplement to No. 4272 of the *Astronomische Nachrichten* (September 4). The following are taken therefrom:—

Elements.

T = 1908 December 24^h 31^m 75^s M.T. Berlin.
 $\infty = 174^\circ 13' 13''$
 $\Omega = 105^\circ 3' 31''$ } 1908^o
 $i = 140^\circ 36' 58''$
 $\log q = 9.96412$

Ephemeris 12h. M.T. Berlin.

1908	α app. h. m.	δ app.	$\log r$	$\log \Delta$	Brightness
Sept. 18 ...	1 16.1 ...	+75 39.9 ...	0.2651 ...	0.1325 ...	2.1
" 20 ...	0 40.7 ...	+76 17.2 ...	0.2530 ...	0.1039 ...	2.5
" 22 ...	0 0.4 ...	+76 31.9 ...	0.2530 ...	0.1039 ...	2.5
" 24 ...	23 17.2 ...	+76 18.0 ...	0.2405 ...	0.0767 ...	3.0
" 26 ...	22 34.6 ...	+75 31.5 ...	0.2405 ...	0.0767 ...	3.0
" 28 ...	21 55.5 ...	+74 12.1 ...	0.2277 ...	0.0520 ...	3.6
" 30 ...	21 21.8 ...	+72 22.2 ...	0.2277 ...	0.0520 ...	3.6

The hazy, moonlit skies of the past week have militated against the observation of the comet in London, but, as will be seen from the ephemeris, the comet is becoming brighter, and will remain visible throughout the night during the present month, so that observations of it are very probable. The accompanying chart shows the

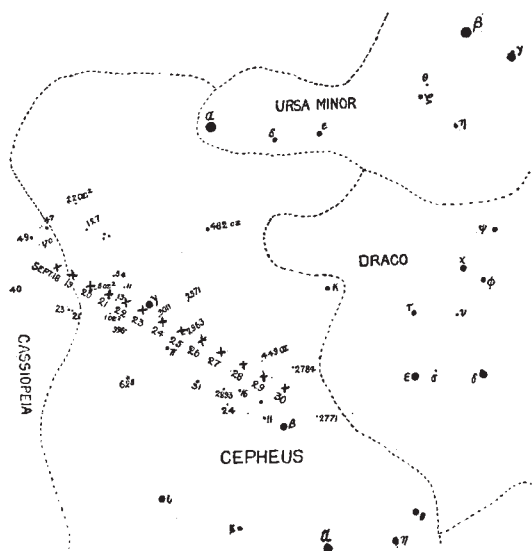


Chart showing apparent path of Comet 1908c, September 18–30.

apparent path of the comet, through the constellation Cepheus, for the remainder of September. It may be noted that at midnight on September 23 the comet will be about 4m. E. and 36' S. of the 3.5 magnitude star γ Cephei.

Observations made by M. Giacobini at Nice on September 3, 4, and 5, and published in No. 10 of the *Comptes rendus* (September 7, p. 474), showed that the comet then

appeared as a round nebulosity, of some 15" to 20" diameter, having an ill-defined nucleus and a feeble condensation. A small tail, in position-angle 250° , was suspected. When the field was illuminated gradually, the comet disappeared with stars of the eleventh magnitude.

OBSERVATIONS OF JUPITER.—In No. 4272 of the *Astronomische Nachrichten* (p. 389, September 4) Prof. Barnard briefly discusses some of his observations of the Great Red Spot, and directs particular attention to the peculiar repellent action of this spot, acting on the material of the south equatorial belt to form the Red Spot Bay. In the earlier observations of 1879, and again in 1885 and 1886, the bay was strongly marked, the material north and following the spot on the southern edge of the equatorial belt being apparently repelled, and leaving a clear, symmetrical interval between the main body of the belt and the spot itself. Since then the spot has, to a great extent, lost its red colour, and has, apparently, become greatly enfeebled, yet this repellent action has apparently persisted as strongly as ever; at the present time the matter of the equatorial belt has advanced so far southwards as to enclose completely the spot, yet a clear, narrow space, symmetrical in figure with the spot, isolates the latter object entirely from the surrounding material of the belt.

In the same journal Father Chevalier, of the Zê-sè Observatory, places on record the results of his observations of an occultation by Jupiter of the star BD+19°.2095 on May 21.

THE FRANKLIN-ADAMS PHOTOGRAPHIC CHART.—In a letter to the *Observatory* (p. 354, No. 400, September) Mr. Franklin-Adams states that, with propitious weather conditions, he hopes to finish his chart photographs of the northern hemisphere early in October. Those already completed have proved so successful that he fears that some of the plates for the southern hemisphere will have to be repeated in order to compare favourably with the northern plates. The counting and classification of the star images is to commence at once, experimentally and tentatively, and Mr. Franklin-Adams intends to lay his proposed method before an early meeting of the Royal Astronomical Society in order that he may receive the general advice of those experienced in such work.

ANOMALOUS FORMS OF THE CALCIUM LINE, K, IN PROMINENCES.—In No. 24, vol. ii., of the *Mitteilungen der Nikolai-Hauptsternwarte zu Pulkowo*, Prof. Belopolsky discusses the results obtained during 1906–7 in a photographic research on the anomalous forms of the "K" line of calcium in prominences photographed at the sun's limb.

The object of the observations was to study the motions of material at the sun's surface, and to provide data for the discussion of the question of anomalous dispersion. Prof. Belopolsky gives three plates of reproductions of some of the forms recorded, together with full details of the measurements and a brief discussion of the results.

THE HYPOTHETICAL PARALLAXES OF DOUBLE STARS.—From a study of fifty-four binary stars of which the proper motions are generally known, and for which he has calculated the hypothetical parallaxes, Dr. Doberck has obtained some interesting results, which he states briefly in No. 4271 of the *Astronomische Nachrichten*.

On the assumption that the annual parallax is, on the average, one-fifteenth of the proper motion, the masses of the two components should average thirty-six times that of the sun, but in the few cases where the parallax has been determined it is indicated that each single star is, on the average, only some 1.3 times the mass of the sun. It is also shown, in these results, that the hypothetical parallax amounts to about one-seventh of the proper motion where the latter is large, is equal where it is small, and is about 0".03 where the proper motion is too small to be determined.

From the figures given it appears that the hypothetical parallax is not a function of the magnitude; even in the case of stars of the sixth magnitude, at which rapidly revolving double stars are most common, the individual results differ greatly *inter se*, whereas hypothetical parallax and proper motion are very closely related.